2017 AML Conference

Title

Understanding the Impact of Spatial Scale on Measurements of Biological and Physical Properties of Reclaimed and Former Mine Areas.

Abstract

Precision agriculture using UAS (unmanned aerial systems) sensor technology is experiencing substantial growth in terms of capacity to extract information and in rates of adoption by farm and land managers everywhere. Low cost "natural RGB" and "near-infrared" imaging devices coupled with low cost aerial platforms (drones) are providing very high spatial resolution images used to estimate crop health, a common example being the Normalized Difference Vegetation Index (NDVI). When collected over time, these products allow for dynamic adjustments in management practices and further processing yields models for evaluating other quantities such as carbon sequestration potential. Optimizing the use of these technologies in support of localized decision-making requires an understanding of how derived estimates of biophysical parameters vary in magnitude according to the spatial scale at which the measurements are acquired.

This current project utilizes low altitude visible and near-infrared data (VISIR) imagery collected at multiple reclaimed mine sites near Hindman, Ky for characterizing local biophysical attributes. ***UAS –based estimates*** are evaluated against ***satellite-based estimates*** of the same parameters derived from the Sentinel 2 Mission imagery. Preliminary results suggest that correlations between estimates of NDVI are generally positive and significant, suggesting a high potential for confident use in decision making.

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